



# Volunteer Lake Assessment Program Individual Lake Reports

## WHITE OAK POND, HOLDERNESS, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	3,008	Max. Depth (m):	10.7	Flushing Rate (yr <sup>-1</sup> ):	1.3	Year	Trophic class	KNOWN EXOTIC SPECIES
Surface Area (Ac.):	291	Mean Depth (m):	4	P Retention Coef:	0.66	1979	MESOTROPHIC	
Shore Length (m):	5,100	Volume (m <sup>3</sup> ):	4,697,500	Elevation (ft):	583	1990	MESOTROPHIC	

### TROPHIC CLASSIFICATION

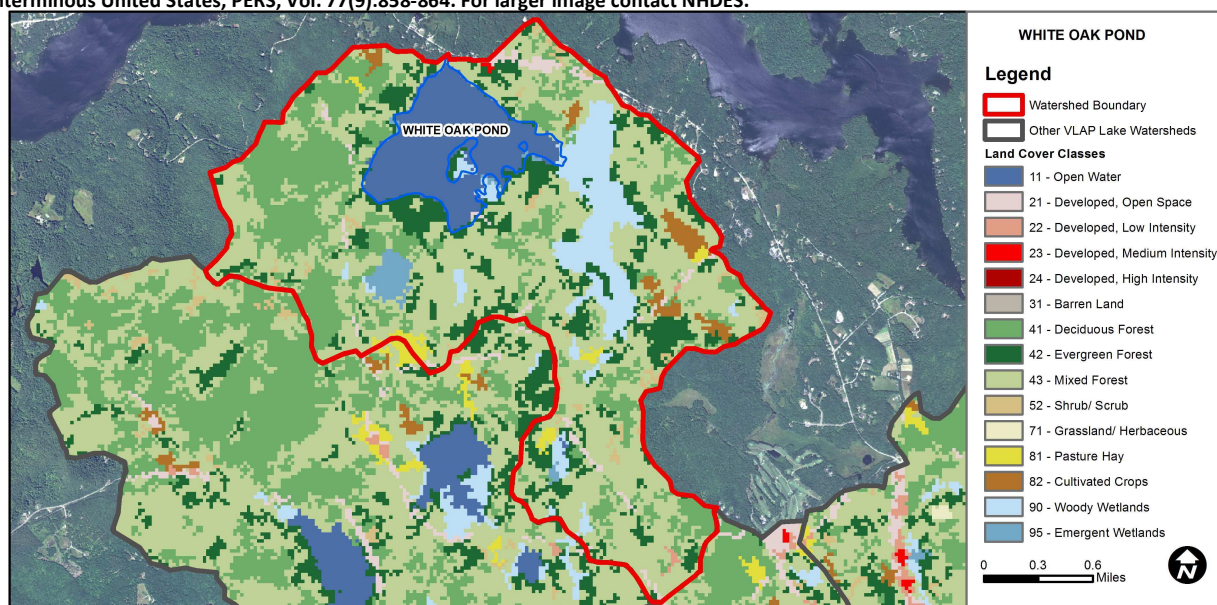
### KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geometric mean. No single sample exceedances. More data needed.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	9.79	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	1.52	Deciduous Forest	19.95	Pasture Hay	0.9
Developed-Low Intensity	0.14	Evergreen Forest	13.33	Cultivated Crops	1.7
Developed-Medium Intensity	0.04	Mixed Forest	42.43	Woody Wetlands	7.71
Developed-High Intensity	0	Shrub-Scrub	1.26	Emergent Wetlands	1.3



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

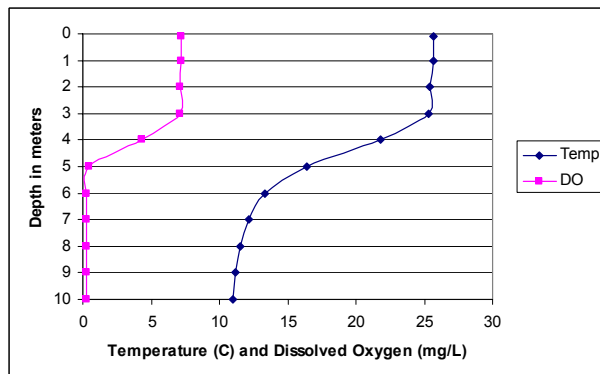
## WHITE OAK POND, HOLDERNESS, NH

### 2012 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels were relatively low and have decreased since 2010. Historical trend analysis indicates chlorophyll levels tend to fluctuate from year to year.
- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity at every station except #3 Dump Inlet and Trib and #9 E Holderness Rd were relatively low and only slightly greater than the NH lake median.
- ♣ **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus levels were relatively low and less than the NH lake median. Historical trend analysis indicates a relatively stable epilimnetic phosphorus trend since monitoring began. Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) phosphorus were slightly greater than the epilimnion. Phosphorus levels in #2 Lamb Swamp, #3 Dump Trib and #9 E Holderness Rd were elevated in July and/or August either due to low flow conditions and/or minor rain events flushing wetland systems prior to sampling.
- ♣ **TRANSPARENCY:** Transparency was consistent with 2011 and slightly greater than the NH lake median. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- ♣ **TURBIDITY:** Hypolimnetic turbidity was slightly elevated suggesting sediment contamination or an increase of organic compounds in the hypolimnion due to low dissolved oxygen levels. Turbidity in #3 Dump Trib was elevated in August, and #9 E Holderness Rd was elevated in July and August which may have contributed to the elevated phosphorus levels.
- ♣ **pH:** pH levels were less than desirable in the metalimnion and hypolimnion.
- ♣ **RECOMMENDED ACTIONS:** Conduct chloride monitoring at tributary stations with elevated conductivity. Keep up the great work!

#### Dissolved Oxygen & Temperature Profile



Station Name	Alk.	Chlor-a	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	uS/cm	ug/l	NVS	VS	ntu	
#2 Lamb Swamp Inlet			45.3	21			0.72	6.21
#3 Dump Inlet			138.9	10			0.76	6.90
#3 Dump Trib			187.7	18			1.48	6.71
#4 Outlet (Dam)			45.3	7			0.50	7.01
#6 Stone Bridge			45.1	9			0.70	7.02
#9 E Holderness Rd Trib			85.8	24			2.10	6.54
Deep Epilimnion	6.47	4.35	45.7	8	3.66	4.35	0.60	7.08
Deep Metalimnion			46.6	12			1.33	6.21
Deep Hypolimnion			51.0	14			2.75	6.26

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:  
 Sara Steiner  
 PO Box 95  
 Concord, NH 03302-0095  
 (603) 271-2658  
 sara.steiner@des.nh.gov



#### Historical Deep Spot Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data

